

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SG2006/000255

## A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

H01L 27/082 (2006.01) H01L 21/02 (2006.01) H01L 29/737 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DWPI and keywords: transistors, HEMT, HFET, HBT, bipolar, high electron mobility, hetero-junction, epitaxial, GaN, gallium nitride, aluminium gallium nitride, heat, sink, dissipate, source, drain, gate, connection, contact, insulator, conductive, layer, surface, heat, material, and other similar terms.

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2005/0127397 A1 (BORGES ET AL) 16 June 2005 See figure 9, paragraphs 55-70	1-3, 7-14, 16-21, 25-35
Y	US 2002/0117681 A1 (WEEKS ET AL) 29 August 2002 See figures 7 and 8, paragraphs 59-61	1-3, 7-14, 16-21, 25-35
Y	US 5192987 A (KHAN ET AL) 9 March 1993 See figures 1, 3, 5, 6, and columns 1-4	1-3, 7-14, 16-21, 25-35

☒ Further documents are listed in the continuation of Box C☒ See patent family annex

- \* Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search  
25 October 2006

Date of mailing of the international search report

6 NOV 2006

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2004/0130037 A1 (MISHRA ET AL) 8 July 2004 See figures 3, 4, 9-11 and paragraphs 46-52, 60-65	1-3, 7-14, 16-21, 25-35
A	US 2005/0164482 A1 (SAXLER) 28 July 2005 See entire document	
A	US 4107720 A (PUCEL ET AL) 15 August 1978 See entire document	
	Claims 1-3, 7-14, 16-21, 25-35 are not inventive when document US 2005/0127397 is combined with either US 2002/0117681, US 5192987, or US 2004/0130037.	

### Information on patent family members

International application No.

PCT/SG2006/000255

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report			Patent Family Member				
US	4107720	CA	1027257	DE	2548483	FR	2290041
		GB	1482337	JP	51067076	US	4016643
US	2002117681	EP	1378012	US	6611002	US	2004130002
		WO	02069410	WO	2005022639		
US	5192987	US	5296395				
US	2004130037	AU	2003300000	CA	2511005	CN	1757119
		EP	1579509	US	6825559	US	2005006669
		US	2005067716	WO	2004061973		
US	2005164482	CA	2554003	EP	1706895	US	7033912
		US	2006138455	WO	2005074013		
US	2005127397	AU	2002306569	EP	1386354	US	6956250
		US	2002117695	WO	02069373		

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX